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Citation for final published version:

Abdullah, Ali Adel Ne'ma and Tallantyre, Emma ORCID:  
<https://orcid.org/0000-0002-3760-6634> 2019. HSV-2 radiculitis: An unusual presentation mere days after genital infection. Clinical Neurology and Neurosurgery 185 , 105429. 10.1016/j.clineuro.2019.105429 file

Publishers page: <https://doi.org/10.1016/j.clineuro.2019.105429>  
<<https://doi.org/10.1016/j.clineuro.2019.105429>>

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**Key words: Herpes simplex 2, Radiculitis, Elsberg syndrome**

## **Introduction**

Herpes viruses infect millions of people annually worldwide but the majority of infections are asymptomatic or mild and self-limiting. However, occasionally they can cause significant morbidity, even in immunocompetent individuals.

Herpes simplex virus type 2 (HSV-2) infection may result from primary infection or latent reactivation. In adults, it is mainly acquired through sexual activity. Neurons throughout the central nervous system can harbour latent HSV-2, although frequency is highest in the sacral ganglia [1]. The virus may reach sites far from the site of primary infection [2].

HSV-2 infection manifesting as acute sacral radiculitis is often referred to as Elsberg syndrome [3]. Reported symptoms include radicular pain, paraesthesias, urinary retention, constipation, anogenital discomfort and leg weakness [3]. The disorder is typically self-limiting, improving within days to weeks in the context of antiviral medications and/or steroids, although neurological recovery is often incomplete [1].

## **Case report**

A 40-year-old Caucasian woman presented with painful genital ulcers 5 days after engaging in vaginal and anal intercourse with a new partner. She was tested positive for genital herpes (day 1) and was prescribed a 3-day course of oral aciclovir. However, 2 days after completing this course she presented with severe headache, photophobia, nausea, vomiting, neck stiffness and lower back pain.

Cerebrospinal fluid (CSF) analysis showed high protein (2.43g/L) and high white cells (256 x 10<sup>6</sup>/L; 10% polymorphs and 90% lymphocytes). Computed tomography (CT) of the head was normal. She was treated with intravenous ceftriaxone and aciclovir for suspected meningitis.

Her headache, photophobia, nausea, vomiting and neck stiffness gradually improved over several days and had completely resolved by day 13. Polymerase chain reaction (PCR) from the CSF confirmed the presence of HSV-2. Human immunodeficiency virus (HIV) and syphilis serology were negative and vaginal/anal swabs yielded negative results for chlamydia and gonorrhoea.

Two days after the onset of headache (day 8), she began to complain of difficulty voiding urine, constipation, perineal numbness, shooting pains down both legs and tingling in the soles

of her feet. On examination, she had anaesthesia in the S3-S5 dermatomes and absent anal tone. At day 12 she developed improvement of urinary control but new faecal incontinence. Magnetic resonance imaging (MRI) of the whole spine yielded normal findings. Repeat lumbar puncture on day 21 demonstrated negative PCR for HSV-2. However, in the presence of persistent saddle anaesthesia, faecal incontinence and paraesthesia in the feet, a further 3 weeks of IV aciclovir was administered.

At day 29 she developed new shooting pains in the anal area and experienced improvement in the control/sensation of passing flatus and the need to evacuate bowels. Rectal examination demonstrated improvement in anal tone.

After discharge from hospital (day 37), she was seen by a continence advisor who provided a bowel irrigation system to be used each morning. Her control of defecation had improved, usually going once a day in the morning, but full sensation of the need to defecate had not returned and she still had occasional episodes of incontinence of faeces.

Telephone interview at day 129 revealed that continence control had further improved. She uses the continence irrigation system only 1-2 times per week and has maintained regular bowel habit going once per morning. If she slips out of this routine then she will sometimes experience incontinence episodes. Sacral pain and numbness in the soles of the feet, however, continues to be an issue.

## **Discussion**

HSV-2 radiculopathy is a rare but clinically important phenomenon. A history of past or recent herpes simplex infection should raise a high index of suspicion in cases where the patient is complaining of acute symptoms such as radicular pain, paraesthesias, urinary retention and faecal incontinence. Our case is unusual in the close proximity of the genital herpes simplex infection and symptoms of radiculitis. In one retrospective review of Elsberg syndrome, 2/30 patients had sacral herpes infection (zoster, n = 1; simplex, n = 1) that immediately preceded clinical presentation and 1/30 patients had oral herpes simplex [4]. Furthermore, only 53% of their patients had ever been tested for HSV, implying that just under half of patients had never exhibited oral or genital herpes symptoms.

Reported prognosis of complete neurological recovery is poor. In a retrospective review of 30 case reports, of the 12 cases who reported on recovery 8% exhibited full recovery rate, 67% moderate recovery and 25% no recovery [4]. Another review of 9 cases reported a 33% recovery rate [5].

The ideal treatment of HSV-2 radiculitis is debatable. Some authors treat with aciclovir, others with corticosteroids, and some with both aciclovir and corticosteroids. There are insufficient case reports to draw conclusions on the best approach or optimal duration of treatment. Corticosteroid treatment duration is typically methylprednisolone 1g per day over 3-5 days. Aciclovir treatment duration varies wildly between studies: from 6-21 days [4-5]. The effectiveness of antivirals is debatable, but given their favourable risk profile it is considered wise to administer aciclovir if HSV radiculitis is suspected [4].

## **Conclusion**

In summary, we present a case of concurrent meningitis and radiculitis in the context of genital herpes infection. Demonstrating the virus in CSF analysis and excluding other possible causes via MRI scans or other infectious tests can aid diagnosis. Treatment with anti-virals is advised given the possibility of permanent neurological deficit, as neurological recovery is often incomplete. Our patient received 3 days of oral aciclovir in the week prior to admission and 4 weeks of intravenous aciclovir but in spite of this exhibited only partial neurological recovery.

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## **Abbreviations**

CSF: cerebrospinal fluid

CT: computed tomography

HIV: human immunodeficiency virus

HSV: herpes simplex virus

HSV-2: herpes simplex virus 2

IV: intravenous

MRI: magnetic resonance imaging

PCR: polymerase chain reaction

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### **Declarations**

**Funding:** This research did not receive any specific grant from funding agencies in the public, commercial, or not-for-profit sectors.

**Consent for publication:** Written consent was provided by the patient for use of her details in this case report.